LMT Tools 铣削刀具
LMT Tools Milling
LMT 蓝帜金工
LMT Milling Tools: Productive and innovative

PERFORMANCE TEAM
The new DHC HARDLINE by LMT Fette is used wherever high strength materials up to 1600 N/mm² or hardened steel from 45 up to 55 HRC are processed.

The unequal splits of its cutting edges ensure a maximum in balanced running and process safety. It suits perfectly for HSC machining or trochoidal milling and also comes into its prime when milling edges, shoulders and slots as well as drilling up to 0.5 x its diameter. The main user benefit of the DHC HARDLINE is an excellent surface quality on the work piece and an enhancement of the tool life up to 60 % compared to similar competitor products.

The new tool is available in a diameter range from 6-20 mm and in the two different cutting lengths short and long.
MultiEdge 2Feed mini – 2刃进给王
MultiEdge 2Feed mini – small milling cutter with big results

LMT Fette开发的新型MultiEdge 2Feed mini进给钻刀应用于中小型模具的粗加工，正角槽型刀片可以实现低负载高效率的大余量切削。

两种不同的切削槽型，两种不同的切削材质可以覆盖绝大多数的材料及工件的加工。

MultiEdge 2Feed mini进给钻，螺旋旋入式接口刀具直径为16至42mm，装2至6片刀片。刀盘形式有直径40至80mm，装9片刀片。所有刀体带有内冷，所有刀体使用相同大小的刀片。

The new insert milling cutter MultiEdge 2Feed mini by LMT Fette is used in the machining of small and medium components. The positive high feed geometry of the unified small cutting inserts permits a maximum material removal rate even in less powerful machining centers.

Two different insert geometries in two different cutting material types ensure that almost all materials used in tool and die making can be processed.

The MultiEdge 2Feed mini is available as screw-on type milling cutter with diameters of 16–42 mm with 2–6 inserts and as plug-in milling cutter with diameters of 40–80 mm with up to 9 inserts. All inserts are supplied by an internal coolant supply. Only one insert size is required for all tool diameters.

利益:
- 高金属切除率，低负载
- 高进给
- 刀片库存成本低

特征:
- 通用可切削型，应用领域广泛
- 正角槽型适合软材料加工
- 单一尺寸刀片
- 所有刀体带内冷

Benefits:
- High material removal rates even on less powerful machining centers
- High feed rates feasible
- Low storage cost for the inserts

Features:
- Universal indexable insert geometry for a broad area of application
- Positive insert geometry for soft cutting
- One unified size of inserts
- Internal cooling on all inserts
WPB-AF 高精度仿形铣刀片
Copy inserts WPB-AF – Precision in optimum time

LMT-Kieninger 扩展了WPB-AF产品，增加了R0.5的刀尖圆角。

The inserts of the LMT Kieninger μ-Jet generation WPB-AF are expanded by a design with a corner radius of R0.5.

这使得在加工小零件时获得更好的加工质量。

This enables the perfect smoothing of filigree contours especially in small components and for filigree contours.

为了适应加工石墨电极，刀片增加了R0.5刀尖圆弧加金刚石涂层。较高的加工稳定性和长的刀具寿命得到保证。

Since this especially occurs in the manufacturing process of graphite electrodes, the design with the corner radius of R0.5 is also available with diamond coating. High process safety and long service life are guaranteed.

新材质LCHK10M利用红色纳米新型涂层，可以应用于钢、铸钢及耐热钢的加工。同时这种高性能的涂层还可以用于加工HRC62左右的淬硬钢。

For machining steel and cast steel as well as highly heat resisting steel the LCHK10M type with the new Nanomold Red coating is available. This high performance coating is also suitable for the machining of hardened steel up to 62 HRC.

利益：
- 小零件的精密加工
- 硬度至HRC62淬硬材料的半精加工及精加工
- 高的稳定性加工及刀具寿命长

Benefits:
- Precise machining of small work pieces and filigree contours
- Semi finishing and finishing of hardened steel up to 62 HRC
- High process safety and long service life

特征：
- 刀尖圆角增加了R0.5
- 红色纳米新型高性能涂层
- 增加了金刚石涂层，应用于加工石墨
- 刀片为螺旋切削刃口

Features:
- Expanding the portfolio by the corner radius of R0.5
- High performance coating Nanomold Red
- Diamond coating to machine graphite available
- Toroidal indexable insert with helical cutting edge

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SuperFinish – 超精加工铣刀片
SuperFinish – Dimension for precision

模具精加工要求加工稳定性、严格的表面质量及较长的刀具寿命。最新的SF超精加工刀片为这些设立了新的标准。高精度切削刃槽型及优化的切削刃处理使得刀具寿命提高30%成为可能。

SF槽型值得你选择！
如果你使用WPR-SF刀片加工，即使加工一个很大的工件也不需要更换刀片。或者你通过优化切削参数来显著地降低加工时间。

利益:
- 降低加工时间25%
- 更换刀片后无需重新加工
- 显著地降低了刀具成本
- 优化的基材、新型红色纳米涂层

特征:
- 高精度槽型，适合硬度至HRC65材料的精加工
- 高强度材料的半精加工及精加工
- 适合加工时间非常长的工件
- 高精度切削刃处理并进行抛光，适合无人化生产的加工。
- 非常高的尺寸精度及可换位精度
- 新的优化刀杆（增加刀杆涂层）提高了加工的稳定性

The requirements with regard to finishing in mold and die manufacturing are process reliability, good surface quality and an extended tool life. The new SF (SuperFinish) geometry sets new standards for exactly these issues. Due to a high-precision cutting edge geometry with an optimized cutting edge preparation, we make it possible to realize tool life improvements of > 30 %.

It's your choice!
When using the new WPR-SF, you will be able to machine even larger components without having to replace any cutting inserts. Or you reduce your machining time significantly by optimizing the cutting parameters.

Benefits:
- Reduction of the machining time by 25 %
- No rework after replacing the indexable inserts
- Significantly reduced tool costs
- Mold and die optimized grade, Nanomold Red

Features:
- High-precision geometry for finishing hardened steel up to 65 HRC
- For finishing and semi-finishing high-strength steel
- For components with very long machining times
- Polished cutting edge with high-precision cutting edge preparation for high process reliability even in manless production
- Very high dimensional and indexing accuracy
- New, optimized milling tool holder product line with increased stability and wear-resistant front coating
High Feed Cutting – LMT Fette High Feed Face Milling

Significant increases in productivity and drastic cost savings with high feed mills now reach a new level – with the new LMT Fette MultiEdge Double4Feed High Feed Mill product line. Compared to conventional face milling heads, the metal removal rate is increased many times over. And with 8 serviceable cutting edges per indexable insert, the MultiEdge Double4Feed sets new standards regarding efficiency. The MultiEdge Double4Feed is an optimal tool for face milling and is available with diameters from 50 to 160 millimeters and with cutting materials for steel and cast processing.

High feed milling is realized with small setting angles ("kappa"). This reduces the cutting forces, and the feed values can be increased considerably.

Your success: shorter machining times, reduced production costs. We will be happy to advise you with regard to your applications.

Features:
- 8 serviceable cutting edges per indexable insert
- High-performance high feed geometry for face milling operations
- Stable indexable insert geometry for machining steel and cast materials
- Negative protective bevel with rounded cutting edge
- Adjusted cutting edge design for increasing the process reliability
- Increased performance due to innovative cutting material types as LCP40M, LCP44M, LCP10M, and LCK10M
- New TERA speed coating (LCP44M) especially for wet machining of steel materials
- Cutter bodies available with two different pitches

Advantages:
- Reduced tool costs
- Maximum metal removal rate during face milling
- Reduced machining times
- Economic production due to increase in productivity
- Reduced tendency to vibration
- Very good chip transport
- Increased tool life compared to conventional face milling operations

应用案例
Application example

底座（机床结构件）
Base (Machine construction)

刀具 Tool:
双面4刃快速给进钻
目录号
Kat.-Nr. Cat.-No. HFN S12, d1 = 63 mm, z = 5

刀片 Insert:
SNKQ 120520 SN | LCP40M

工件材料 Material:
1.1191 / Ck45

切削参数 Cutting data:

v_c = 250 m/min
n = 1260 m/min
f_x = 1.8 mm
v_i = 11400 mm/min
a_e = 0.4 mm
a_f = 1 mm

冷却 Coolant:
干切 dry
ACU-Jet Premium – 新型粗加工牛鼻刀
ACU-Jet Premium – The new generation for roughing

More precision and efficiency in mold and die manufacturing
For the new generation of the ACU-Jet plus, we primarily optimized the roughing procedure. The improved ACU-Jet plus technology will deliver perfect results in less time. And this also applies to high-strength materials. The high dimensional accuracy makes it possible to rough-work so that the result is significantly closer to the desired net shape. In addition, the stability and heat resistance of the tool guarantee an economic tool life of the used inserts. Thus you will reduce your machining times and process costs.

Diversity ensures that you always have the right tool
The ACU-Jet product line was divided into 3 types so that you can find the right tool more quickly. The ACU-Jet Double6 design has been newly added.

AF = Application Finishing
suitable for finishing and light roughing operations

AFR = Application Finishing + Roughing
also suitable for finishing and up to medium grade roughing operations

AR = Application Roughing, ACU-Jet plus
suitable for roughing high-strength tool steels and high-alloy materials, e.g. in the die and mould industry or in the aerospace technology.

ACU-Jet Double6, same performance, double tool life
As the most recently developed design within the ACU-Jet roughing product line, the ACU-Jet Double6 now is available. Its chief attraction is a double sided indexable insert for multiple use. 6 locks provide for an optimal utilization of the cutting edge.

Your advantages:
- Double sided indexable insert up to 12 cutting edges
- Up to 50 % more tool life
- Very stable tool body
- Anti-twist protection of the inserts for more process safety
- Easy handling

ACU-Jet Premium | Plus | Double6
FinishLine Premium–半精和精加工高精度铣刀
FinishLine Premium – the high precision cutter for semi-finishing and finishing

FinishLine Premium, LMT Kieninger 公司升级版通用铣削产品用于半精及精加工，同时列表中添加了新产品：整体式铣刀

特性：
- 在模具及通用加工领域可实现高精度半精及精加工
- 而现有产品相比刀具齿数更多
- 这就意味着在保证同等表面质量的条件下，加工时间更短
- 更稳定的刀体设计即提高了表面质量又增加了加工的可靠性
- 整体式铣刀从D12mm开始
- 可转位刀片带有修光刃几何形状并采用Nanomold Red 高性能涂层

FinishLine Premium, the universal milling product by LMT Kieninger for semi-finishing and finishing has been completely upgraded, with a cylindrical shank version added to the list of product.

The user can now put himself of a high performance milling system that allows him to reproduce ground quality surfaces.

Features:
- High-precision tool for semi-finishing and finishing both in die and mold and in general machining
- Higher no. of teeth compared with the existing product range
- This means shorter manufacturing times while equal surface quality is achieved
- Significantly more stable main body design enables improved surface geometry and increased process reliability
- Cutters starting from Ø 12 mm with cylindrical shank
- Indexable inserts with wiper geometry and the new Nanomold Red high-performance coating
MultiEdge TAN 90 Double4

通过引入FETTE生产的TAN90双面型刃立装铣刀系统，进一步提高了铸铁粗糙加工效率。

由于可靠性安装，立装可转位刀片实现了加工的高稳定性，同时刀片具有8个有效切削刃，经济性更好。

特性：
- 立装刀片具有8个有效切削刃
- 最大切削达到8.5mm
- 专用铣刀直径从D50mm到D160mm
- 刀体采用耐磨损保护
- 铸铁加工采用高耐磨级材质LCK20M

With the introduction of LMT Fette’s innovative tangential milling system, MultiEdge TAN 90 Double4, takes another step forward towards improving performance in the roughing of cast iron materials.

Due to its securely mounted, tangentially arranged indexable inserts it excels thanks to its high stability while machining, and as a special feature it also has 8 usable cutting edges per insert.

Features:
- Tangential insert featuring 8 cutting edges
- Depth of cut up to 8.5 mm
- Standard milling cutter Ø 50 mm to Ø 160 mm
- Main body with wear protection
- Highly wear-resistant cast iron grade LCK20M

MultiEdge TAN 90 Double4

8个有效切削刃
8 usable cutting edges

精密烧结刀片：SXMX 120604 SR
Precision-sintered indexable insert SXMX 120604 SR

切削刃编号
Cutting edges numbered consecutively

90°台阶精密铣削
Precise 90° step milling

安装SXMX 120604 SR
刀片的特殊刀具
Special tool with tangential insert SXMX 120604 SR

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MultiEdge 45 Double4 – Face milling cutter 45° with double sided inserts

LMT Fette新生产的双四刃45°面铁刀取代了已成功运用很多年的FMT45铣刀。原因如下：产生更多的经济效益，更高的加工效率及更好的表面质量

这些目标通过以下特性实现：

特性：
- 刀片双面带有8个切削刃
- 非常稳定的刀片几何形状
- 刀片正前角几何形状适用于软材料切削
- 3种硬质合金等级适用于钢、铸铁及不锈钢加工
- 所有刀体都带有内冷设计

优势：
- 由于刀片正前角几何形状适合软材料切削
- 非常高的表面质量
- 即使大切深，噪音也很低
- 更小的轴向压力
- 高加工可靠性
- 可实现最大6mm切深
- 同一把刀具可实现粗-精加工

The new tool system MultiEdge 45 Double4 from LMT Fette replaces the Twincut face milling cutter FMT45, which has been successful for many years. This is done for the following reasons:
- to generate even more economic efficiency, a higher process reliability, and an even better surface quality.

These goals are achieved by the following features:

Features:
- double sided insert with 8 cutting edges
- very stable insert geometry
- positive geometry of the insert for soft cutting
- 3 carbide grades for steel, cast iron, and stainless steel are available
- internal cooling on all inserts

Advantages:
- soft cutting due to positive geometry of the insert
- very high surface quality
- very low in noise, also with high depth of cut
- less strain on the milling spindle
- high process reliability
- up to 6 mm depth of cut possible
- roughing and finishing with the same tool
Feed per tooth of MultiEdge 4X compared with other inserts shape

MultiEdge 4X: Small chips because of chip division
MultiEdge Double8 - Cutting edge designs

**MultiEdge** 双八刃刀-切削刃设计

导轨  
Guide rail

刀具 Tool:  
双八刃45°面铣刀  
MultiEdge Double8 face milling cutter 45°

目录号 Cat.-No.  
FMN45，d₁ = 80 mm，z = 7

刀片 Insert:  
ONGU 0606 AN ENL LC610T

材质 Material:  
GGG NiSiCr 3552 EN-GJS-600 (GGG60)

切削参数 Cutting data:  

- $v_c = 180 \text{ m/min}$
- $n = 716 \text{ m/min}^{-1}$
- $n = 250 \text{ mm/min}$
- $f_y = 0.35 \text{ mm}$
- $a_w = 60 \text{ mm}$
- $a_p = 4 \text{ mm}$
- $Q = 60 \text{ cm}^3/\text{min}$

**ONGU_EN**

稳定的刀片几何形状适合灰铁和球墨铸铁的高性能加工。
Stable insert geometry for high-performance machining of gray iron and spheroidal graphite iron. Negative protective chamfer with rounded cutting edge, ideally suited for use with high performance machines.

**ONGU_SN**

带修光刃的几何形状适用于宽深区域加工。带修光切削刃的可转位刀片。
Wiper insert geometry for a broad range of applications. Periphery ground indexable insert with rounded cutting edges. Can be used for medium strength steels and for cast materials.
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